

WHAT IS CLAIMED IS:

1. A method of manufacturing a composite member having a conductive pattern, comprising:
  - (1) forming on a surface of an insulating body a photosensitive layer containing both a photosensitive compound forming an ion-exchange group or causing an ion-exchange group to disappear upon irradiation with an energy beam and a crosslinkable compound having a crosslinkable group;
  - 10 (2) forming a pattern of ion-exchange groups by selectively exposing the photosensitive layer to an energy beam so as to form an ion-exchange group in the exposed portion or to cause an ion-exchange group to disappear from the exposed portion;
  - 15 (3) crosslinking the crosslinkable compound contained in at least the exposed portion of the photosensitive layer;
  - (4) allowing metal ions, a metal compound, or a metal colloid to be adsorbed on the pattern of ion-exchange groups formed by the selectively exposing; and
  - 20 (5) forming a composite member having conductive pattern by depositing a conductive material on the pattern of ion-exchange groups having the metal ions, the metal compound, or the metal colloid adsorbed thereon using an electroless plating.
- 25 2. The method according to claim 1, wherein the crosslinkable group is capable of a radical

polymerization, and the photosensitive layer further contains a radical generating agent.

3. The method according to claim 2, wherein at least one of the photosensitive compound and the radical generating agent is peroxide esters.

4. A method of manufacturing a composite member having a conductive pattern, comprising:

(1) forming on a surface of an insulating body a photosensitive layer containing a photosensitive polymer having both a photosensitive group capable of forming an ion-exchange group or causing an ion-exchange group to disappear upon irradiation with an energy beam and a crosslinkable group;

(2) forming a pattern of ion-exchange groups by selectively exposing the photosensitive layer to an energy beam so as to form an ion-exchange group in the exposed portion or to cause an ion-exchange group to disappear from the exposed portion;

(3) crosslinking the crosslinkable group contained in at least the exposed portion of the photosensitive layer;

(4) allowing metal ions, a metal compound, or a metal colloid to be adsorbed on the pattern of ion-exchange groups formed by the selectively exposing in a pattern; and

(5) forming a composite member having conductive pattern by depositing a conductive material on the

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pattern of ion-exchange groups having the metal ions, the metal compound, or the metal colloid adsorbed thereon using electroless plating.

5. The method according to claim 4, wherein  
5 the crosslinkable group is capable of a radical  
polymerization, and said photosensitive layer further  
contains a radical generating agent.

6. The method according to claim 5, wherein at least one of said photosensitive polymer and said radical generating agent is peroxide esters.

7. A photosensitive composition, comprising:  
a polymer having a photosensitive group forming  
an ion-exchange group upon irradiation with an energy  
beam and an crosslinkable group capable of a radical  
polymerization; and

20 a radical generating agent.

8. The photosensitive composition according to  
claim 7, wherein said crosslinkable group capable of  
a radical polymerization is at least one crosslinkable  
group selected from the group consisting of a vinyl  
group, an acryloyl group, a methacryloyl group and  
a maleimidyl group.

9. A porous substrate, comprising:  
a porous body having voids; and  
25 a photosensitive layer formed on the inner surface  
of the voids,  
wherein the photosensitive layer containing

a composition having both a photosensitive compound capable of forming an ion-exchange group or causing an ion-exchange group to disappear upon irradiation with an energy beam and a crosslinkable compound, or containing a photosensitive polymer having both photosensitive group capable of forming an ion-exchange group or causing an ion-exchange group to disappear upon irradiation with an energy beam and a crosslinkable group.

10        10. A porous substrate, comprising:  
              a porous body having voids; and  
              a photosensitive layer formed on the inner surface  
of the voids,  
              wherein the photosensitive layer contains a  
15        polymer having a photosensitive group capable of  
              generating an ion-exchange group upon irradiation with  
              an energy beam and a radical polymerizable group, and  
              a radical generating agent.

11. A method of manufacturing a composite member having a conductive pattern, comprising:

(1) forming on a surface of an insulating body a photosensitive layer containing a photo acid generating agent and a compound forming an ion-exchange group in the presence of an acid;

25 (2) selectively exposing said photosensitive  
layer to an energy beam so as to generate an acid in  
the exposed portion;

(3) forming a pattern of ion-exchange groups by allowing the acid generated by the selectively exposing in the exposed portion of the photosensitive layer to form an ion-exchange group; and

5 (4) forming a composite member having conductive pattern by allowing a metal ion, a metal compound, or a metal colloids to be adsorbed on the pattern of ion-exchange groups,

10 wherein the compound forming an ion-exchange group in the presence of the acid is a copolymer having a first repeating unit having ion-exchange groups and a second repeating unit having an atomic group not decomposed by an acid and insoluble in an alkali, and some or all of said ion-exchange groups are protected  
15 by a protective group.

12. The method according to claim 11, further comprising:

20 (5) depositing a conductive material on the pattern of ion exchange groups having the metal ion, a metal compound or a metal colloids adsorbed thereon using an electroless plating.

25 13. The method according to claim 11, wherein the compound forming an ion-exchange group in the presence of the acid is a polymer having an acryl skeleton and/or styrene skeleton on the backbone chain.

14. The method according to claim 11, wherein the compound forming an ion-exchange group in the presence

of the acid has at least one atomic group selected from the group consisting of a sulfonium ester group, a carboxylic acid ester group and a phenol derivative group.

5       15. The method according to claim 11, wherein the compound forming an ion-exchange group in the presence of the acid has a tetrahydropyranyl group, a t-butyl group or a t-butoxy carbonyl methyl group as a protective group for protecting said ion-exchange  
10 group.

16. The method according to claim 11, wherein said atomic group not decomposed by the acid and insoluble in the alkali of said second repeating unit is a crosslinkable group.

15       17. A photosensitive composition comprising,  
          a photo acid generating agent, a high molecular weight compound capable of forming ion-exchange groups in the presence of an acid, and a photosensitizer,  
          wherein the photosensitive composition is  
20 sensitive to light having a wavelength not shorter than 450 nm,

          said high molecular weight compound is a copolymer having a first repeating unit having ion-exchange groups and a second repeating unit having an atomic group not decomposed by an acid and insoluble in an alkali, and  
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          some or all of said ion-exchange groups are

protected by a protective group.

18. The photosensitive composition according to  
claim 17, wherein said atomic group not decomposed by  
an acid and insoluble in an alkali of said second  
repeating unit of said high molecular compound is  
a crosslinkable group.

19. An insulating body used for the manufacture  
of a composite member having a conductive pattern  
comprising a porous body and the coating layer on the  
inner surface of the pore of said porous body, wherein  
the coating layer formed with the photosensitive  
composition defined in claim 17.

30. OBERG. *Die ersten drei*